



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/931,540	08/16/2001	Gordon Taylor Davis	RP9200101111US1	3256
25299	7590	03/24/2005	EXAMINER	
IBM CORPORATION PO BOX 12195 DEPT 9CCA, BLDG 002 RESEARCH TRIANGLE PARK, NC 27709			AILES, BENJAMIN A	
			ART UNIT	PAPER NUMBER
			2142	

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/931,540

Applicant(s)

DAVIS ET AL.

Examiner

Benjamin A Ailes

Art Unit

2142

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-24 have been examined.

Drawings

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because is not of acceptable length, between 50 and 150 words, and because the abstract must be on a page separate from the title. Correction is required. See MPEP § 608.01(b).

5. Claim 20 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 4 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. As per claim 4, the phrase "that is" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

9. As per claim 24, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-4, 7, 9-19, and 21-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Blumer et al. (U.S. 6,856,596), hereinafter referred to as Blumer.

12. As per claims 1 and 13, Blumer discloses a method comprising the steps of:

- a) determining that a datagram arriving at an interface between a network and an edge resource is the initial datagram in a sequence of datagrams associated in a common session as to which a new connection is requested (col. 3, lines 42-44);
- b) providing a table of values indicating the probability that a new connection will be allowed for each of a plurality of pipes (col. 3, lines 56-58);
- c) determining the pipe membership of a determined initial datagram by testing Quality of Service bits in said datagram and selecting from the provided table a probability value corresponding to the determined pipe membership of the determined initial datagram (col. 3, lines 64-66 and col. 6, lines 47-53); and
- d) determining from the selected probability value whether establishment of a new connection will be allowed for the associated session and selectively acknowledging the determined initial datagram and allowing a new connection for

the associated session based upon the determination of whether a new connection will be allowed (col. 4, lines 1-5).

13. As per claim 2, in accordance with claim 1, Blumer discloses the method wherein the step of determining allowability of a session and selectively acknowledging an initial datagram further includes the steps of:

- e) providing a random number (col. 3, lines 51-55);
- f) performing a comparison of a current value of the random number with the new connection allowance probability value selected from the table of values (col. 4, lines 1-5);
- g) disregarding the initial datagram if the current state of the random number generator is greater than the new connection allowance probability value (col. 4, lines 55-61); and
- h) sending the initial datagram to an edge device or to an attached session handling device wherein an acknowledgment signal can be computed and transmitted if the current state of said random number generator is less than or equal to the new connection allowance probability value (col. 4, lines 55-61).

14. As per claim 3, in accordance with claim 2, Blumer discloses the method wherein the random number and the new connection allowance probability value are both fractions between 0 and 1.0, that is, in the interval of fractions in $[0, 1]$ (col. 4, lines 38-43 and col. 5, lines 11-14).

15. As per claim 4, in accordance with claim 1, Blumer discloses the method wherein the step of determining pipe membership further includes the step of comparing

administratively specified values with the value of selected fields in a packet header of the datagrams (col. 6, lines 14-20).

16. As per claim 7, in accordance with claim 1, Blumer discloses the method wherein the step of determining whether a datagram constitutes a request for a new connection of a certain value further includes the step of comparing administratively specified values with the value of selected fields in a packet header of the datagram (col. 6, lines 47-53).

17. As per claim 9, in accordance with claim 1, Blumer discloses the method wherein the table of values is indexed according to pipe numbers with each corresponding table entry representing the new connection allowance probability corresponding to the associated pipe (col. 3, line 56 – col. 4, line 1).

18. As per claim 10, in accordance with claim 1, Blumer discloses the method further comprising the step of responding to actual offered loads of simultaneous connections in each of said pipes relative to guaranteed connection numbers of those pipes by altering the values in the table (col. 2, line 65 – col. 3, line 5).

19. As per claim 11, in accordance with claim 10, Blumer discloses the method further comprising the step of generating a signal indicative of the existence or nonexistence of excess connection capacity within the interface that affects a pipe flowing through the interface and wherein the altering of the table values is further responsive to the generated signal (col. 3, lines 10-18, specifically lines 17-18).

20. As per claim 12, in accordance with claim 11, Blumer discloses the method wherein the step of generating a signal includes manipulation of multiple components

each of which corresponds to excess connection capacity within an interface, and further wherein the pipes within the interface are grouped according to which shared resources within the interface are currently dedicated to the processing of the grouped pipes (col. 4, lines 45-54 and lines 65-67).

21. As per claim 14, in accordance with claim 13, Blumer discloses the method wherein numerals are used to indicate the identity of pipes and the identity of datagrams (col. 6, lines 47-53).

22. As per claim 15, in accordance with claim 14, Blumer discloses the method further including the steps of providing a random number generator (col. 3, lines 51-55); and allowing or disallowing a request for a new connection represented in the initial datagram of a new session based upon the value of the new connection allowance probability and a present value of the random number generator (col. 4, lines 55-61).

23. As per claim 16, Blumer discloses a method of managing congestion in a communications network comprising the steps of:

- operatively monitoring, with a device for determining the existence of excess connection capacity, the existence of excess connection capacity within a communications device (col. 2, line 65 – col. 3, line 5);
- generating a signal indicating existence or nonexistence of said excess connection capacity in said communications device (col. 2, line 65 – col. 3, line 5); and

- using the generated signal to acknowledge or disregard requests for new connections in the form of initial packets of new sessions prior to initiating processing on the new connections (col. 3, lines 42-55).
24. As per claim 17, Blumer discloses an apparatus comprising:
- a) a memory in which a table of pipe identifiers and associated values for new connection allowance probabilities of transmission are stored (col. 3, lines 56-63);
 - b) a buffer which stores a portion of a frame determined to be an initial frame of a new session (col. 3, lines 42-48);
 - c) a random number generator that periodically outputs random numbers (col. 3, lines 51-55);
 - d) controller operatively coupled to said memory, said buffer and said random number generator, said controller:
 - parsing information stored in said buffer to determine a pipe membership number for the initial frame (col. 6, lines 47-53),
 - determining from said table a new connection allowance probability value corresponding to the determined pipe membership number (col. 3, lines 56-63),
 - comparing the probability value with a present value of the random number generator (col. 4, lines 1-5), and
 - causing the initial frame to be acknowledged or disregarded based upon the result of the comparison (col. 4, lines 55-61).

25. As per claim 18, in accordance with claim 17, Blumer discloses the apparatus further comprising an interface to an external controller separate from said apparatus, said interface being coupleable through the external controller to at least one other network device and altering the probability values stored in said memory to indicating new connection allowance probability values in response to algorithm constants and determined actual connection values in each identified pipe relative to guaranteed connection values for those pipes (col. 2, line 65 – col. 3, line 5).

26. Regarding claim 19, in accordance with claim 17, Blumer discloses the apparatus wherein said controller alters the probability values indicating new connection allowance probability in response to algorithm constants and actual current connection number data for each of said pipes relative to guaranteed data connection values for those pipes (col. 2, line 65 – col. 3, line 5).

27. Regarding claim 21, in accordance with claim 19, Blumer discloses the apparatus wherein said controller responds to a signal from a packet forwarding device communicating with said apparatus indicating the existence of excess connection capacity within that forwarding device that affects a pipe flowing through said apparatus by altering the table of values stored in said memory (col. 2, line 65 – col. 3, line 5).

28. Regarding claim 22, in accordance with claim 18, Blumer discloses the apparatus wherein said interface passes to the external controller a signal from said apparatus indicating excess connection capacity within said apparatus that affects a pipe flowing through said apparatus (col. 2, line 65 – col. 3, line 5).

Art Unit: 2142

29. Regarding claim 23, in accordance with claim 21 or 22, Blumer discloses the apparatus wherein said signal includes multiple components each of which corresponds to the existence of excess connection capacity within a different set of processing resources, said pipes flowing through said apparatus being grouped according to which shared resources they direct data to, and wherein the assignment of said values is performed separately for each group of pipes (col. 4, lines 45-54 and lines 65-67).

30. Regarding claim 24, Blumer discloses an apparatus comprising:

- an interface between a network such as the Internet and an edge resource such as a server (col. 2, line 65 – col. 3, line 5); and
- an excess connection capacity monitoring device operatively coupled to said interface, said excess connection capacity monitoring device monitoring connection numbers in said interface and in said edge resource and generating at least one signal indicating the existence of an excess connection capacity state in said interface and said edge device (col. 2, line 65 – col. 3, line 5).

Claim Rejections - 35 USC § 103

31. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

32. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blumer in view of Davies et al. (U.S. 6,483,805), hereinafter referred to as Davies.

33. Regarding claim 5, Blumer discloses the use of a standard packet header (Blumer, col. 6, lines 47-53), but is silent on the use of the Differentiated Services Code Point (DSCP) field. However in related prior art, Davies teach a method for utilizing the DSCP field (Davies, col. 4, lines 46-59) in a standard packet header (Davies, Fig. 2 and 6) in order to determine where a packet belongs. One of ordinary skill in the art at the time of the applicant's invention would have found it obvious to utilize the use of the DSCP field in a standard packet header as disclosed by Davies in order to determine the membership of the packet (Davies, col. 4, lines 46-47 and 57-59). It is for this reason that one of ordinary skill in the art would have been motivated to utilize the DSCP field disclosed by Davies in combination with the standard packet IP header disclosed by Blumer.

34. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blumer in view of Mauger et al. (U.S. 6,507,577), hereinafter referred to as Mauger.

35. Regarding claim 6, Blumer discloses the use of a standard packet header (Blumer, col. 6, lines 47-53), but is silent on the use of MPLS tunnel designation. However in related prior art, Mauger teaches a method of transporting packets using MPLS tunnels (Mauger, col. 2, lines 35-37). One of ordinary skill in the art at the time of the applicant's invention would have found it obvious to utilize MPLS tunnels in order to transport standard packets in an efficient manner (Mauger, see Abstract). It is for this reason that one of ordinary skill in the art would have been motivated to utilize the MPLS tunnel method taught by Mauger in combination with the packet transportation method disclosed by Blumer.

Art Unit: 2142

36. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blumer in view of Colby et al. (U.S. 6,449,647), hereinafter referred to as Colby.

37. Regarding claim 8, Blumer discloses the use of a standard packet header (Blumer, col. 6, lines 47-53), but is silent on the use of the Transmission Control Protocol (TCP) Synchronization (SYN) field. However in related prior art, Colby teaches a method for utilizing the TCP SYN field (Colby, col. 7, lines 24-32) in a standard packet header (Colby, col. 1, lines 15-41) in order to determine where a packet should be forwarded. One of ordinary skill in the art at the time of the applicant's invention would have found it obvious to utilize the use of the TCP SYN field in a standard packet header as disclosed by Colby in order to determine the route of the packet (Colby, col. 7, lines 24-32). It is for this reason that one of ordinary skill in the art would have been motivated to utilize the TCP SYN field disclosed by Colby in combination with the standard packet IP header disclosed by Blumer.

Conclusion

38. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Goyal et al. (U.S. 6,466,985) disclose a method and apparatus for providing quality of service using the Internet protocol.

Albert et al. (U.S. 6,775,692) disclose proxying and unproxying a connection using a forwarding agent.

Kerr et al. (U.S. 6,243,667) disclose network flow switching and flow data export.

Aweya et al. (U.S. 6,788,697) disclose a buffer management scheme employing dynamic thresholds.

Aweya et al. (U.S. 6,690,645) disclose a method and apparatus for active queue management based on desired queue occupancy.

Chuah (6,226,277) discloses a method for admitting new connections based on usage priorities in a multiple access system for communications networks.

Aydemir et al. (U.S. 6,771,652) disclose a method and system for controlling transmission of packets in computer networks.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin A. Ailes, whose telephone number is (571)272-3899. The examiner can normally be reached on Monday-Friday (7:30-5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Harvey can be reached at (571)272-3896. The fax phone number for the organization where this application or proceeding is assigned is (703)308-5358.

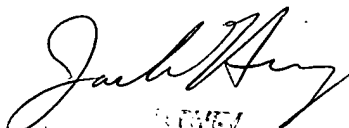
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit: 2142

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [benjamin.ailles@uspto.gov].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Benjamin Ailes
Patent Examiner
Art Unit 2142


SUPERVISOR
ART UNIT 2142